CROP TALK

Volume 10, Issue 1 — OMAFRA Field Crop Specialists – Your Crop Info Source — March, 2010

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Read Your Soil Test Report Carefully!

by Keith Reid, Soil Fertility Specialist, OMAFRA

Growers in Ontario can have confidence that their soil samples have been properly analyzed, thanks to the Soil Test Accreditation Program. Accurate analytical results do NOT, however, ensure that the lab provides the fertilizer recommendations that are printed in the OMAFRA publications, or that are part of the NMAN nutrient management software.

I have been contacted by several growers who questioned the recommendations included on their soil test reports. One noted that the recommendations provided by the lab would have added $4,000 to his fertilizer bill for 160 acres. While there may be reasons for applying higher rates of fertilizer, I am sure you will want to be making those decisions yourself after considering the reasons carefully.

The approved Ontario recommendations are based on research showing that these rates provide, on average, the highest net returns to fertilizer in the year it was applied. This rate of fertilizer won't always provide the highest possible yield, but the bushels you sacrifice are the bushels that cost more to produce than they pay back.

Other jurisdictions base their recommendations on the philosophy of building up soil fertility to the point where crop yields are not limited, and then applying fertilizer each year to replace what is removed. You may want to consider this approach on land that you own, but it is hard to see the advantage to building soil fertility on rented land.

What You Can Do

1. Submit your soil tests without listing a crop. This way, you can go directly to the tables in the Agronomy Guide (OMAFRA Publication 811), or to the OMAFRA website at

Cropline
1-888-449-0937

Ministry of Agriculture, Food and Rural Affairs
Ontario

www.omafra.gov.on.ca/english/crops/facts/fert-rec-tables-toc.htm to make your own recommendations.
2. Specify to the lab that you want to receive only the OMAFRA fertilizer recommendations when you submit your samples.
3. Read the reports carefully when they arrive to ensure they don't recommend more fertilizer than you really need.

Manure Economics .... Again

by Christine Brown, Nutrient Management Specialist, OMAFRA

Over $25,000 in commercial fertilizer equivalent is produced on a 100 milking cow farm. (Example 1)

Everyone likes to save money. While "Nutrient Management Planning" is a phrase that has become associated with rules and regulations, more importantly it is a process that can generate money for the farm.

Manure is a reality on livestock farms. The handling of manure is a cost usually associated with the livestock portion of the farm. Manure handling has many costs connected with it, including equipment purchase and maintenance, the opportunity cost for the time it takes to properly apply manure to fields, and the liability when something goes wrong. Additional costs may also be incurred when the landbase is limited and additional land must be rented, or in situations where manure agreements must be established. Targetting the nutrients from manure where they are needed, and correspondingly offsetting commercial fertilizer will help to improve the manure handling cost to the operation.

Manure has value. Although mainly credited for its nitrogen, phosphorus and potassium value, manure also returns micro-nutrients and organic matter to the soil. The organic matter component from manure serves as an agent to improve soil structure and maintain soil tilth. By adding raw plant residues and microorganisms to the soil, manure helps to maintain soil organic matter levels. This improves soil moisture holding capacity, and nutrient uptake by the crop. Regular additions of organic matter results in higher yield capacity because crops are somewhat protected from weather extremes, both dry and wet. Refer to Example 2, "Increasing Organic Matter – How Much Cattle Manure Would it Take?"

Over the past decade, commercial fertilizer prices have been a roller-coaster with more ups than downs. As a result, the N-P-K value from manure has been recognized with increased interest by crop producers, and with increased attention to detail with manure management.

Nutrient management planning using a few NMAN software short cuts will help to identify nutrients on the farm so that commercial fertilizer dollars can be targetted to where they are needed. It can be downloaded **free** from www.omafra.gov.on.ca/english/nm/nman/software.htm

Example 1 - Over $25,000 in commercial fertilizer equivalent produced on a 100 milking cow farm

Liquid system ~ 7,000 gallons manure/cow/yr @ 7.5% DM (including wash water)

Solid system ~ 21 ton manure /cow/yr @ 21% DM

Assuming:
N @ $0.45/lb, P_2O_5 @ $0.45/lb, K_2O @ $0.50/lb

Liquid System

Manure N:
$5,670 immediate + $1,080 residual = $ 6,750

Manure P:
immediate + residual = $ 4,635

Manure K: = $ 9,050

$ 20,435

Solid System

Manure N:
$3,505 immediate + $1,510 residual = $ 5,015

Manure P:
immediate + residual = $ 5,900

Manure K: = $11,100

$ 22,015

100 acres alfalfa N credit = $ 4,500
(100 ac x 100 lb N credit)

Example 2 - Increasing Organic Matter – How Much Cattle Manure Would it Take?

To Change Soil Organic Matter (SOM) by 0.5%

Cattle manure seems to be the best manure source for building stable organic matter. Reasons include relatively high bedding use and cattle rations that are high in lignin and cellulose and materials that take longer for micro-organisms to break down.

On average, 3% of the soil organic matter pool is lost every year through decomposition

.

Average solid cattle manure:

- 30% dry matter
- Carbon: Nitrogen (C:N) ratio of ~ 17:1

Applying 20 tons/ac x 2,000 lbs/ton x 30% dry matter = 12,000 lbs solids.

About 75% of the solids would break down in the year of application, leaving 25% or 3,000 lbs of organic matter.

Assuming:

- 2,000,000 lbs/ac in a 6 inch layer of soil (furrow slice) and
- 3% SOM level.

20 tons of solid cattle manure would provide a 0.15% increase in SOM.
With average loss of about 0.1% OM from the soil pool (assuming a 3% SOM level), it would take **10 years of applying 20 ton/ac/yr to increase the soil organic matter level by 0.5%.**

What if 200 tons were added as a one time application? NOT RECOMMENDED! It would also add about 1,600 lbs of P_2O_5 and almost 5,000 lbs of K_2O and up to 1,000 lbs of nitrogen.

[2]Based on information from F. Magdoff and H. Van Es

Selecting A Pasture Mix

by Jack Kyle, Grazier Specialist, OMAFRA

"What is the best pasture mix" is a question that crosses my desk on a frequent basis. The answer is simple, "that all depends". Each situation needs to be looked at for the specific characteristics and then look at the grass and legume species that best match.

Making Hay?

Is hay going to part of the management of this field? Are you looking to take a 1st-cut of hay and then graze the second growth? Or is it going to be hay for a couple of years and then become a pasture? If hay is going to be part of the management plan, then alfalfa is likely a good choice for the legume component of the mix. Alfalfa does best in well drained soils. Trefoil can tolerate more uneven drainage, so it could be a possibility if the field is poorly drained. Clovers might be considered, but keep in mind that they are slow to dry if you want to make hay. White clover is excellent for pasture. Its spreading growth habit will fill in some open spaces between bunch grasses. Red clover will only last for 2 years in a stand.

Bunch Grasses & Sod Forming Grasses

Including both bunch grasses and sod forming grasses in a pasture mix will be beneficial. Bunch grasses include orchard grass, meadow brome, timothy, perennial rye grass and tall fescue. Sod forming grasses include smooth brome, reed canary grass, Canada bluegrass, Kentucky bluegrass and creeping red fescue.

Orchard Grass

Orchard grass is a very productive grass that works well for both grazing and stored forage. For pasture, an advantage of orchard grass is that once the seed head is removed the plant stays vegetative for the rest of the growing season. Orchard grass is reasonably productive in dry conditions. Orchard grass starts to grow very early in the spring, well before any of the other species. The disadvantage is that when it heads out, the forage quality drops very quickly and dramatically.

Meadow Brome

Meadow brome is almost as productive as orchard grass. Similar to orchard grass, it stays vegetative after the first seed head is removed. This is a big benefit in a pasture situation.

Reed Canarygrass

Reed canarygrass makes excellent pasture. It does well in moist soil conditions. Because of its big root system, it can be productive in dry conditions as well. The disadvantage of reed canary grass is that it is slow to get established. It typically takes 2 or 3 years before you see very much reed canarygrass in the stand. Reed canarygrass stores energy in the base of the stem and re-grows from the top of the cut stem. For this reason, if cutting reed canary for stored forage, the cutting height should be fairly high at 3 – 5 inches (7-10 mm).

Perennial Ryegrass and Tall Fescue

Perennial ryegrass makes excellent pasture, but generally does not last more than 2-3 years in our Ontario environment. Perennial ryegrass prefers cool temperatures and good moisture levels. Tall fescue is the best grass for stockpiling forage for late-fall and early-winter grazing. If the pasture you are seeding will be used in this way then consider tall fescue as one of the species for the mix.

For more information, refer to:

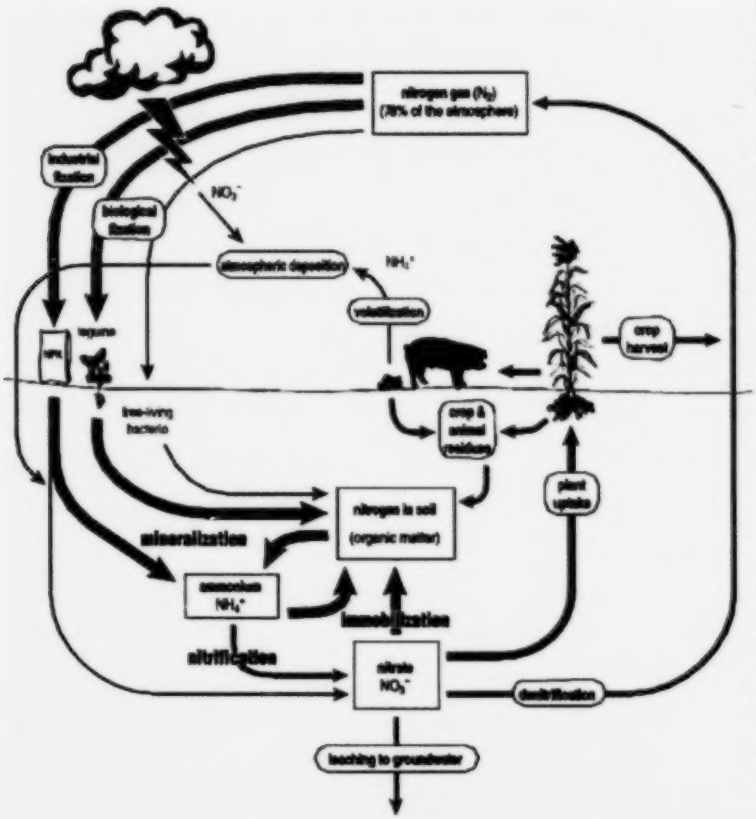
- www.omafra.gov.on.ca/english/crops/pub811/3species.htm

Weather Impacts on Nitrogen Response

by Keith Reid, Soil Fertility Specialist, OMAFRA

When we apply nitrogen (N) fertilizer in the spring, we are assuming a certain pattern of weather over the growing season. Fertilizer recommendations have been developed for "average" conditions. We either consider weather variations to be something that is outside of our control, or not very important relative to other variables. These assumptions, however, may mean that we are ignoring opportunities to improve N management, or that the management we do apply actually reduces rather than increases N use efficiency.

Changes in the soil as a result of weather conditions affect every part of the nitrogen cycle (See Figure), but not all of them are affected in the same way. Mineralization from soil organic matter will increase as the temperature increases, irrespective of soil moisture content, but so will immobilization. Nitrification also increases with temperature, but only in soils with adequate air. In waterlogged soils, nitrification almost stops but denitrification increases as the soil warms up.



Further complicating matters, the growth and N uptake by the crop will vary with the amount of heat and moisture available.

Understanding the impact of weather on the various nitrogen transformations in the soil has been useful for explaining what happened to a crop after the fact. Using this information to adjust nitrogen fertilizer rates is more difficult. Two approaches that seem to have some merit are starter N applications to avoid early N deficiencies, and adjusting side-dress N applications based on early season weather.

Starter N

Cool conditions in the spring and early summer can significantly delay the release of N from organic sources, such as manure or legume plowdown. It is not uncommon to see pale and stunted fields of corn where there should have been lots on N but it is still tied up in organic forms. N applied at 15 – 30 lbs/ac at planting can overcome this "lag", and carry the crop until the weather warms up and the rate of N mineralization increases.

Note that the only situation where this would mean an increase in total N rates applied to the field is where the organic N sources should meet the entire needs of the crop. For optimum productivity, it is probably better to leave some room for fertilizer N in your program rather than depend completely on manure.

Side-Dress Adjustments

The adjustment that is most firmly based on research is the use of the pre-sidedress N test (PSNT) to account for the nitrate content in the soil. While it works well in some situations, critics point out that it cannot account for variations in the capacity of the soil to supply N through mineralization. An alternate approach, being investigated at Cornell University in New York State, suggests that the weather up to side-dress time can be used as an indicator of potential N supply from the soil. Researchers there suggest that cool and wet weather during May and June will depress the rate of N mineralization, so that the N fertilizer rate should be increased. This is opposite to the approach of many farmers who assess the crop at side-dress time, and apply more fertilizer if the crop looks like it has high yield potential.

Neither approach is perfect. The Cornell approach looks only at N supply, while the farmer approach assumes that the supply of N is constant and makes adjustments according to expected demand. To make real progress towards optimum N rates for different weather conditions, we will need to develop systems that at least acknowledge both supply and demand. Good conditions for corn growth are also good conditions for N mineralization, so the decision to add more N to a good crop may depend on whether that particular field has enough organic matter to supply extra the N. Similarly, conditions that reduce N availability from the soil early in the growing season would only justify increased N application if the crop appeared to have overcome any early setbacks.

Crop Budgeting For 2010

by Hugh Martin, Organic Crop Production Program Lead, OMAFRA

Everyone needs to know their cost of production. The OMAFRA crop budgets are once again available as **2010 Field Crop Budgets (OMAFRA Publication 60)** www.omafra.gov.on.ca/english/busdev/facts/pub60.pdf.

They are also posted on the OMAFRA website as **Ontario Enterprise Budgets** (both in manual and as interactive Excel spreadsheet formats) at: http://www.omafra.gov.on.ca/english/busdev/bear2000/Budgets/oeb.htm.

As well as the field crop budgets, the web version includes budgets for various fruits and vegetables as well as livestock Cost of Production Calculators. In total there are over 70 budgets available.

Use Your Own Costs & Assumptions

These budgets show default values for costs, yield and expected price. However, they are only useful to you when you put in your own real costs. Your own assumptions may be quite different from those shown. Expected prices for some crops and inputs are significantly different than the past couple years, so crop budgeting is essential to maximize your returns for the whole farm.

Considerations

What should you include in your budget? It is good to look at the costs of growing the crop from planting to harvest, but are there other costs to consider. Should the cost of cover crops be attributed to this years crop or to next years crop, especially if it is a legume that will allow you to reduce nitrogen next year? If you apply manure once every 3 years in the rotation, is that a cost to the current crop or should the cost be spread over the other crops according to where most of the nutrient and organic matter benefits will accrue? Should the cost of spreading the manure be attributed to the livestock enterprise or to the crop? These are decisions for you to make, but these costs must be accounted for somewhere.

Crop Rotation

Crop rotation is a benefit that adds another complexity to yield. Having a rotation of corn-soybeans-wheat will likely increase yields 10-15% more than a continuous crop of corn or soybeans. Crop rotation is also a low cost way to spread out the workload on both you and your equipment. Adding red clover as a cover crop will add another 5-10% yield, especially for the corn crop. These effects are greater on clay soils than on loam soils. Include these aspects in determining your expected yield, especially on fields that do not get these benefits.

Expected Yields

When deciding which crop to plant, expected yields are very important in calculating the bottom line. To determine your expected yield, look at your crop history. Some people suggest the last 6 years, which will usually include a good year, a bad year and four average years. Always use realistic expected yields and not just your best yields or area yields. In most cases you have good fields and poor fields, so consider the expected yield for each field individually.

Organic Agriculture Information

by Hugh Martin, Organic Crop Production Program Lead, OMAFRA

There are several new **OMAFRA Factsheets** (including PDF) on organic agriculture.
(www.ontario.ca/organic/organic.htm)

"Introduction To Organic Farming" *(Order No. 09-077)*
www.omafra.gov.on.ca/english/crops/facts/09-077.htm

"Starting An Organic Farm", *(Order No. 09-073)*
www.omafra.gov.on.ca/english/crops/facts/09-073.htm

"Transition To Organic Crop Production" *(Order no. 10-001)*
www.omafra.gov.on.ca/english/crops/facts/10-001.htm

"2009 Canadian Organic Standards" :
www.tpsgc-pwgsc.gc.ca/cgsb/on_the_net/organic/index-e.html.
"General Principles and Management Standards"
"Permitted Substances Lists"

USDA organic production survey:
www.agcensus.usda.gov/Publications/2007/Online_Highlights/Organics/ .

Soil Erosion, Soil Health and More

by Adam Hayes, Soil Management Specialist – Field Crops, OMAFRA

Environmental Commissioner Concerned About Soil Erosion Risk

The Ontario Environmental Commissioner 2008/2009 Annual Report identified the risk of soil loss from water erosion as an environmental concern. Referencing Agriculture & Agri-Food Canada 2001 environmental indicators for Ontario cropland water erosion risk, 44% of crop land was at risk of losing more than 6 tonnes/hectare (2.4 tonnes/ac) of soil per year. This rate of soil loss is above the tolerable level, where the rate of soil loss equals the rate of soil created.

This report serves to remind us that we must continue our efforts to prevent soil erosion. The commissioner credits the many programs aimed at reducing soil erosion over the last 20 years, but implies that more needs to be done. One of the challenges for soil conservation in Ontario is the number of cropping situations where little crop residue is left on the soil. We must continue to keep all the land protected as much as possible, especially in higher risk situations that leave the soil vulnerable to soil erosion.

Tillage Erosion More Serious Than Wind and Water Erosion

David Lobb, Department of Soil Science, University of Manitoba, has been studying tillage erosion for almost 20 years. David states that "wind and water erosion are not the major causes of soil erosion and degradation". Instead he declares that "tillage is the major cause of erosion in many landscapes."

Tillage erosion is the net redistribution of soil resulting from the variability in soil translocation by tillage. Fields with many short, steep slopes are most sensitive to tillage erosion. The amount of soil moved is determined by the type of implement, number of passes, depth and speed, tractor match to the implement, operator behavior, and the field slope. Intensive tillage (frequent, deep, fast) can cause severe tillage erosion. Tillage erosion results in severe soil loss (20 – 100t/ha/yr) on large areas (15 – 30%) of cultivated fields. Tillage erosion causes more soil redistribution within some fields than wind or water erosion. Tillage erosion is a major delivery mechanism for water erosion, delivering soil to convergent areas of a field where overland flow concentrates. Exposed subsoil is highly erodible to wind and water erosion.

All tillage operations that disturb and move soil can cause significant tillage erosion. Along with the moldboard plow, this includes the chisel, offset disk, cultivators and harvest equipment that moves soil. The Best Management Practices for reducing tillage erosion are pretty straight forward. Reducing the amount of tillage is key. Reduce the depth and speed of the implement. Use implements that do not move very much soil. If you have to do significant tillage, as much as possible try to move the soil up the slope instead of down. For more information see the Best Management Practices booklet Soil Management.

St Clair Region Soil & Crop Improvement Association Projects

The 3 year "Improving Yield of Second Year Soybeans" project is complete. The objective was to determine the value of planting a rye or winter wheat cover crop in multiple years of soybeans. The cover crop was planted immediately following soybean harvest and killed just prior to soybean planting. A late harvest or an early start to winter made it difficult to achieve much growth in the fall, but it usually caught up in the spring. Killing the rye in the spring was not a problem. There was a 2 bu/ac yield advantage for the rye, but none for the winter wheat. The residue from the cover crop may conserve moisture and improve yields on sandy loam soils. One year of University of Guelph research showed a 5 bu/ac yield increase. On one site, the rye reduced soybean cyst nematode levels compared to no cover crop. This is consistent with research by Agriculture and Agri-Food Canada. The cost of seed

and no-till planting of the cover crop is about $25 per acre. The cover crop can provide other soil benefits, such as erosion protection, improved soil structure and some organic matter addition.

The first year of the "Evaluating the Economic Benefits of Corn Hybrid Traits" project is complete. The purpose is to evaluate corn hybrids with and without one or more traits for yield, economic return, and other agronomic characteristics. Country Farm CF 870 (no traits) was compared to CF 870 YGCB (European corn borer (ECB)) and CF870VT3 (ECB, Roundup Ready (RR), corn rootworm (CRW)). Dekalb DKC52-62 (RR) was compared to DKC52-63 (RR, ECB) and DKC52-59 (RR, ECB, CRW). The Country Farm hybrids with the traits did not yield any more than the hybrid without traits. The Dekalb hybrids with the Bt traits did not yield more than the hybrid with just the RR trait. The extra cost of $16 and $40 per acre for the traits was not recovered.

Summaries of these projects can be found in Crop Advances – Field Crop Reports at www.ontariosoilcrop.org .

Cooperators Needed To Evaluate the Cornell Soil Health Assessment!

The OMAFRA soil management specialists are evaluating the Cornell Soil Health Assessment. The Assessment scores a number of indicators of soil health, including nutrient levels, organic matter level, active carbon (the part of the organic matter that is readily available for the microbial community), root health, soil compaction, potentially mineralizable nitrogen, aggregate stability, and available water capacity. In 2009, over 200 samples were taken from long term tillage and rotation research plots. Samples from a wide range of soil types and management systems are targeted in 2010. Soil samples will be taken in the spring or early summer. Cooperators will supply some management history for the field and will receive the results. If you are interested in having your field sampled or want more information contact Adam Hayes (519) 674-1621 or adam.hayes@ontario.ca.

Anthracnose – An Ever Present Danger in Edible Beans

by Brian Hall, Edible Bean & Canola Specialist, OMAFRA

Cool, wet conditions in 2009 were ideal for white mould and anthracnose in edible beans. Low levels of anthracnose infected white bean seed has caused increased problems for processors the past couple of years. In 2009, the disease tended to occur later in the season, and did not cause as much discoloured seed. Anthracnose can cause serious quality and yield losses. Anthracnose causes blemished seed, creating a double cost for growers through:

- loss in weight of delivered beans from 'pick' beans, and
- the added charge to remove these blemished beans.

Some processors in the United Kingdom use a clear sauce on canned product, so blemishes are not as easily masked as with a traditional tomato sauce. It is important for growers to treat edible beans more like a fresh market vegetable crop, where appearance is critical.

Resistant Varieties

Control of anthracnose begins with resistant varieties. Unfortunately there is only one white bean variety, T9903 (an early season variety from Hyland) that carries resistance to the most commonly found race of anthracnose, Race 73. Breeders need to place more emphasis on varieties with resistance to newer races of anthracnose.

Certified, Treated Seed

Growers should start with certified treated seed because the disease can be seed borne. Seed treatments help control early season anthracnose, but are not the only solution. Only one generation of certified white bean seed is typically produced in Ontario because our humid climate increases susceptibility to the seed borne diseases of bacterial blight and anthracnose. The seed industry has been more aggressive the past few years in seed field inspection and application of protectant foliar fungicides. This has immensely helped to reduce the seed borne source, but cannot eliminate the risk completely. Imported seed typically comes from Idaho, Montana and other dry land areas, where anthracnose is not an issue. However, this imported seed costs more and the seed tends to have lower seed moisture, so growers need to be careful in seed handling. Lower moisture seed has been shown to take 1-3 days longer to emerge.

Limit Field Entry

It is important to limit entry into fields during the growing season. Research at the University of Guelph, Ridgetown, has shown that spores of the disease can be easily spread in a field by machinery, pant legs, animals or running water. Spores are heavy, so windborne spread is limited, unlike white mould spores.

Scouting & Foliar Fungicides

Growers also need to be vigilant about learning how to scout for the disease. It is easy to misdiagnose the early signs of leaf vein and stem infection as group II herbicide injury or physical plant injury. We also now have a rapid laboratory test that can quickly confirm the presence of the disease. Scouting and effective registered foliar fungicides are critical tool for growers. Refer to OMAFRA Publication 812, "*Field Crop Protection Guide*". However

fungicides cannot be expected to provide 100% control, so growers need to rely on a multiple approach.

Cereals A Tough Sell ... Again!

Cereals have slid back to a rotation crop ... but have another look!

by Peter Johnson, Cereal Specialist, OMAFRA

It was a short bask in the sun. For a couple of years, I could actually talk about growing cereals for as much profit as corn or soybeans. With the world awash in wheat, and corn yields increasing dramatically, it's back to the drudgery of selling cereals on "rotation benefit". Hang on! There might be more to making money out of cereals than that! So what can you do that would make spring cereals worthwhile?

Seeding Date

There is no factor more important than getting cereals planted on time. Whether frost seeding piques your interest or not, the fact remains that you lose a bushel per acre per day for every day you delay seeding in the optimum window. Anything you can do to get the cereals planted earlier counts, even simple things like having the drill tuned up and ready to hit the fields now.

Planting Depth

Drill technology is inherently poor for controlling seeding depth. However, getting the seed into moisture at the shallowest depth possible is another key to higher yields. Table 1 shows the tremendous impact of seeds being put too deep. Fine tune your seeding depth and you can add bushels to the bin!

Table 1-Planting depth

Depth (inches)	Emergence (days)	Yield (index)
1	72% 3 days	140%
2	79% 5 days	100%
3	82% 7 days	44%

Gan Stobbe & Moes, 1992

Starter Fertilizer

The earlier you seed, the colder the soil, so the less available the phosphorus is. Add 5 bushels to your average yield by including a high phosphorus seed-placed starter. With the corn starter research just developed by OMAFRA Corn Specialist Greg Stewart, you may want to consider a little potash in the blend as good insurance.

Tillage

No crop no-tills as well as cereals! Cereals can handle cold temperatures, and that is what most crops in no-till struggle with. From a long term soil health standpoint, doing less tillage and reducing tillage erosion is huge. (Refer to "Soil Erosion, Soil Health and More", by Adam Hayes.) No-till offers many options, from frost seeding, to seeding earlier, to better soil health in years to come.

Weed Control

Spray early! Just like corn and soybeans, cereals suffer the most yield loss from early weed competition. While there isn't a lot of research in this area, the little bit that we do have indicates that any weeds at the 4- or 5-leaf stage are reducing yield. An additional yield boost will reward growers that get weed control completed by the 3-leaf stage of the crop.

Fungicides

The data is clear. If you grow oats where crown rust is a concern, then you must spray a fungicide at flag-leaf. In our new "managed" performance trials, the yield of some spring wheat varieties was increased by 57% by the use of a fungicide. We don't have barley data yet. Spray those oats. Using the best fusarium fungicide on spring wheat for fusarium looks like it has real potential.

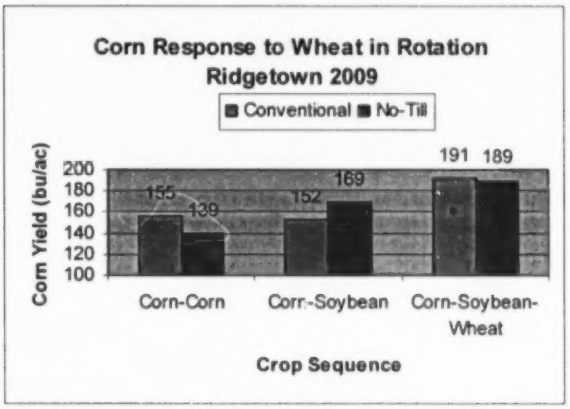
Straw

Straw can add significantly to the bottom line for some growers. It's not as easy to pick a winner as you may think. For the first time, straw yield data is now available at www.gocereals.ca. In those trials, some varieties had 147% straw yield index. At $90/tonne, that could add another $150.00 to your bottom line.

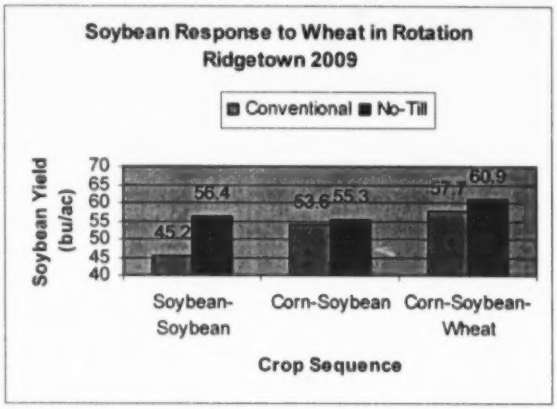
Rotation

Recent research from Dr. David Hooker at the University of Guelph, Ridgetown, drives home the benefit of the wheat crop in a rotation. In 2009, on the long term rotation trials, wheat in the rotation increased corn yields by 30 bu/ac, and soybean yields by 6 bu/ac! In a tough year, the benefits of that wonderful wheat crop translated into $125/acre more corn and beans, even with today's lower prices. Add that to your bottom line!

There, I've done it again. I've been forced to promote cereals in rotation! However, if you apply these management tips, you will find that spring cereals are not the weak link in the profit picture you thought they were. It just takes some MANAGEMENT, just like you would with corn, soybeans, or canola.



*Statistically different from continuous corn within tillage (p=0.05)
All corn yields in the 120kg N/ha treatment
Source: Hooker et al. 2010, Long-term Tillage-Rotation Project, U of G Ridgetown/OMAFRA



*Statistically different from continuous soybean within tillage (p=0.05)
Source: Hooker et al. 2010, Long-term Tillage-Rotation Project, U of G Ridgetown/OMAFRA

What Are the Best Herbicide Programs for Identity Preserved (IP) Soybeans?

by Mike Cowbrough, Weed Specialist, OMAFRA & François Tardif and Clarence Swanton, University of Guelph

Ontario field studies have ranked herbicide treatments based on how well weeds were controlled and relative soybean yields. Over the past two years, the winner has been the low rate of Boundary applied pre-emergent followed by Reflex + Pinnacle + Assure II applied post-emergent. A number of one-pass pre-emergent treatments have been a close second. Below is a summary of the last two field seasons.

Table 1. Top 8 weed management programs for identity preserved soybeans based on overall weed control and yield.

		Weed Control Efficacy (%)		
Rank*	**Treatment**	**Grass**	**Broadleaf**	**Yield Index**
1	"Two-Pass" System Boundary (PRE – low rate) Reflex + Pinnacle + Assure II (POST)	99	90	0.98
2	Conquest + Valtera (PRE – low rate)	99	95	0.96
3	Broadstrike Dual Magnum (PRE)	97	83	0.95
4	Conquest (PRE – low rate)	94	81	0.92
5	Boundary (PRE - low rate)	98	86	0.90
6	Pursuit + Valtera (PRE – high rate)	95	85	0.90
7	Pursuit (PRE – high rate)	81	68	0.89
8	Cleansweep (POST)	92	80	0.85

*Rank based on weed efficacy and soybean yield with a greater weight placed on relative soybean yield. Cost of the treatment is not factored into the overall rank.

Uncontrolled weed species (<80% control) by herbicide:

- Barnyard grass: Pursuit (PRE – high rate)
- Lamb's-quarters (triazine resistant): Boundary (PRE – low rate)
- Pigweed species (group 2 resistant): Pursuit (PRE – high rate)
- Ragweed: Boundary (low rate), Conquest (low rate), Pursuit, Pursuit + Valtera

Tufted Vetch Activity:
Conquest + Valtera gave the best tufted vetch suppression of all treatments tested in 2010.

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ESN Controlled Release Fertilizer on Corn and Spring Wheat

by Scott Banks, Emerging Crop Specialist, Kemptville OMAFRA

An Ottawa-Rideau Regional Soil & Crop Improvement Association project evaluated the economic benefits of ESN® Controlled Release Fertilizer, or Smart Nitrogen (N) use in corn and spring wheat production. ESN is a new product that uses a micro-thin polymer coating to encapsulate a nitrogen granule. This protects the N from loss to the environment and releases it based on temperature and soil moisture, theoretically when the crop needs it. This was the first year of a two year project.

Plot Set-Up

In 2009, there were 2 corn and 2 spring wheat on-farm plots. Equivalent nitrogen rates of ESN and urea were applied at planting at:

1. the grower's standard N rate, and
2. one-half the grower standard rate.

The one-half grower standard rate was used to determine if ESN yielded more grain or higher protein in spring wheat under a lower available nitrogen situation. A Gandy Fertilizer Applicator was used to get accurate product rates. At harvest, plots were weighed and measured for moisture and test weights. Spring wheat samples were collected and the grain analyzed for protein.

2009 Results

There was no corn or spring wheat yield increase, or a difference in spring wheat protein to show a benefit using ESN. Similar spring wheat results were found in the small research plots at the Winchester Research Farm, Kemptville Campus – University of Guelph.

Table 1 - ESN in Spring Wheat, Winchester Research Farm, Kemptville Campus – University of Guelph, 2009

N - Rate (kg/ha)	Product	Average Yield (bu/ac)[2]	Average Protein	Average Fusarium Damage%	Average Toxin (ppm)
90	Urea + Growth Regulator (GR)	58.5b	14.7	17.5	5.9
90	ESN	58.8b	14.7	19.0	5.9
90	Urea	62.3b	14.3	16.3	5.9
90	50% ESN: 50% Urea	63.4b	14.6	17.6	5.9
135	Urea	57.7b	15.1	16.9	6.0
135	Urea + GR	62.3b	15.1	16.7	6.0
135	Urea+GR +Fungicide	61.1b	15.1	17.7	6.0

[2]Yields with the same letter are statistically not different